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A photoelectron emitting device comprising:

a substrate having a major side and a plurality of large aspect-ratio structures extending from the major side; and

B a photocathode made of a photoelectric converting material and formed on the major side of the substrate;

wherein the large aspect-ratio structures have an average aspect ratio of at least about 3:1; and

wherein the large aspect ratio structures are at least partially made of the photoelectric converting material.

#### REMARKS

Reconsideration of the present application is respectfully requested. Claims 11-23 and 38 are pending, as claims 1-10 and 24-37 have been canceled without prejudice to resubmission in a continuing application. Applicants acknowledge that claims 12-23 and 38 have been found to be in condition for allowance. While claim 12 is amended for clarity, the amendment to claim 12 is not seen to impact its allowability. Only claim 11 stands rejected. As detailed below, claim 11 is also in condition for allowance, and a prompt notice of allowance for claims 11-23 and 38 is respectfully requested.

Claim 11 stands rejected under 25 U.S.C. §102(b) as being anticipated by Colditz or Niigaki or Yamagishi. Claim 11 requires, among other things, a large aspect ratio structure extending from a major side of a substrate wherein the large aspect ratio structure is at least partially made of a *photoelectric* converting material. While the action does not call out which

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structures in the references are contended to be the claimed large aspect ratio structure, Applicants presume that the action refers to the following: elements 22 of Colditz, element 12b of Yamagish, and element 32 of Niigaki. However, as detailed below, none of these elements are a large aspect ratio structure extending from a major side of a substrate and at least partially made of a *photoelectric* converting material. Accordingly, for at least this reason the references fail to teach all the limitations of the claim as required for anticipation, and the rejection should be withdrawn.

Elements 22 of Colditz, element 12b of Yamagish are each *scintillators* that convert X-rays to *light*. (See Colditz col. 4 line 67 to col. 5 line 3; Yamagish col. 4, lines 32-33) They are not a photoelectric converting material which converts light into electrons as claimed. In fact, Colditz and Yamagish each teach a separate photocathode layer to convert the X-rays from the scintillators 22 or 12b to electrons (see photocathode 4 of Colditz, col. 5, lines 2-3, Fig. 1; photocathode 12d of Yamagish, col. 4, lines 35-36). These photocathodes of Colditz and Yamagish appear to be nothing more than typical prior art photocathodes layers and are devoid of any large aspect ratio structure as claimed.

Moreover, element 32 of Niigaki does not refer to a structure at all, let alone a large aspect ratio structure extending from the surface of a substrate. Instead, element 32 of Niigaki indicates the terminal presence of hydrogen atoms on the surface of photocathode 30 ("thin film surface (photoelectron-emitting surface) is terminated with hydrogen 32, thus lowering the work function of the polycrystalline diamond thin film." col. 7, line 48-52).

Accordingly, none of the cited references teach a large aspect ratio structure extending from a major side of a substrate wherein the large aspect ratio structure is at least partially made of a photoelectric converting material as recited in claim 11. The rejection of claim 11 should

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therefore be withdrawn, and all pending claims are in condition for allowance. Reconsideration of the application and a prompt notice of allowance is respectfully requested. The undersigned would welcome a telephone call from the Examiner to discuss any matters that would further prosecution of the present application.

Respectfully submitted:



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Claim 12 has been amended as follows:

12 A photoelectron emitting device comprising:

a substrate having a major side and a plurality of large aspect-ratio structures extending from the major side; and

a photocathode made of a photoelectric converting material and formed on the [one] major side of the substrate;

wherein the large aspect-ratio structures have an average aspect ratio of at least about 3:1;  
and

wherein the large aspect ratio structures are at least partially made of the photoelectric converting material.

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